

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims**

Claim 1 (original): A method for scheduling events occurring at non-integral times in a simulation model for modeling analog and mixed signal digital-analog physical circuits and systems in a digital computer, the method comprising:

- assigning scheduled times to the events;
- using a hash function based on the scheduled times of the events, storing the events in buckets, each bucket containing at least one event;
- associating the scheduled times assigned to the events in the buckets with the buckets;
- organizing the scheduled times into a heap;
- removing an earliest scheduled time from the heap;
- simulating the events in the bucket associated with the earliest scheduled time;
- re-organizing the remaining scheduled times into a new heap; and
- repeating the steps of removing a scheduled time, simulating the events, and re-organizing the remaining scheduled times until the heap is empty.

Claim 2 (original): A method according to claim 1, the method further comprising:

- beginning the mixed-signal simulation;
- determining the events from the mixed-signal simulation; and
- determining the scheduled times for when the events are to occur.

Claim 3 (original): A method according to claim 1, wherein simulating the events includes:

- determining new events of the mixed-signal simulation;
- determining the scheduled times for when the events are to occur; and
- placing the new determined events into buckets using the hash function based on the scheduled times of the events.

Claim 4 (original): A method according to claim 3, wherein placing the new determined events includes:

- placing a first new determined event into a new bucket;
- associating the scheduled time assigned to the first new determined event with the new bucket;
- adding the new scheduled time associated with the new bucket to the heap; and
- re-organizing the scheduled times into a new heap.

Claim 5 (original): A method for scheduling events with associated scheduled times occurring at non-integral time intervals, the method comprising:

- storing events in buckets according to their scheduled times; and
- organizing the scheduled times into a structure, wherein the structure is constructed and arranged to allow easy location of an earliest scheduled time.

Claim 6 (original): A method according to claim 5, wherein storing events includes using a non-order preserving hash table to place the events into the buckets according to the scheduled times associated with the events.

Claim 7 (original): A method according to claim 5, wherein each bucket is assigned a specific scheduled time and stores all events assigned that scheduled time.

Claim 8 (original): A method according to claim 5, wherein the structure containing the scheduled times is organized as a heap.

Claim 9 (original): A method according to claim 8, wherein the method further comprises:

- removing a scheduled time from the heap; and
- re-organizing the remaining scheduled times into a new heap.

Claim 10 (original): A method according to claim 9, wherein removing a scheduled time includes performing the events in the bucket associated with the removed scheduled time.

Claim 11 (original): A method according to claim 10, wherein performing the events includes checking to see if the bucket associated with the removed scheduled time is empty.

Claim 12 (original): A method according to claim 5, wherein the method further comprises:  
adding a new scheduled time to the heap; and  
re-organizing the scheduled times into a new heap.

Claim 13 (original): A method according to claim 5, wherein the method further comprises removing a de-scheduled event from a second bucket.

Claim 14 (original): A computer-readable medium containing a program for scheduling events with associated scheduled times occurring at non-integral time intervals, the program comprising:

storage software to store events in buckets according to their scheduled times; and  
organization software to organize the scheduled times into a structure, wherein the structure is constructed and arranged to allow easy location of an earliest scheduled time.

Claim 15 (original): A computer-readable medium containing a program according to claim 14, the storage software including hash software to use a non-order preserving hash table to place the events into the buckets according to the scheduled times associated with the events.

Claim 16 (original): A system for scheduling events with associated scheduled times occurring at non-integral time intervals, the system comprising:

a computer;  
a plurality of buckets stored in the computer, each bucket storing events to occur at a scheduled time; and  
a structure organizing the scheduled times, wherein the structure is constructed and arranged to allow easy location of an earliest scheduled time.

Claim 17 (original): A system according to claim 16, wherein the structure containing the scheduled times is organized as a heap.

Claim 18 (original): A system according to claim 16, wherein the computer includes a mixed-signal simulator for generating events and assigning times to generated events.

Claim 19 (new): A method according to claim 1 wherein the non-integral times are represented in the digital computer as real numbers.

Claim 20 (new): A method according to claim 5 wherein the scheduled times are represented in the digital computer as real numbers.

Claim 21 (new): A computer-readable medium containing a program according to claim 14, wherein the scheduled times are represented in the digital computer as real numbers.

Claim 22 (new): A system according to claim 16, wherein the associated scheduled times are represented in the digital computer as real numbers.